

REMARKS

Claims 1-10 are now pending in the application. The abstract is also amended. No new matter is presented. Pending claims 1-10 stand rejected under 35 U.S.C. § 103 (a). The forgoing amendments and following remarks are considered by Applicants to overcome each rejection raised by the Examiner and to place the application in condition for allowance. An early Notice of Allowance is therefore requested.

I. Claim Objection

The Examiner objects to the abstract for containing an informality. The abstract is amended. No new matter has been added by this amendment. Therefore, Applicants request the withdrawal of the objection to the specification

II. Rejection of Pending Claims 1 -3, 9, and 10 under 35 U.S.C. § 103(a)

Claims 1-3, 9, and 10 stand as rejected under 35 U.S.C. § 103 (a) as being unpatentable over Hallmeyer et al. U.S. Patent No. 6,504,571 and further in view of Loicht et al. (U.S. Publication 2004/0017567). These rejections are traversed and believed overcome in view of the following discussion.

A. Summary of Cited References

Hallmeyer is directed to an optical measurement arrangement that includes an ellipsometer and a device for ascertaining and correcting directional deviations between a line normal to the specimen surface and the angle bisection between the incident and return beams of the ellipsometer. The measurement arrangement includes a mirror objective and a device for ascertaining the direction deviations. An optical element is also disclosed which images the return reflection of the direction monitoring beam onto an area detector that is connected to an evaluation circuit.

Loicht is directed to a miniaturized spectrometer for determining the ingredients of a gaseous or liquid fluid with a light source and a spectrometer having at least one measurement beam and at least one reference beam.

B. Argument

As mentioned above, Hallmeyer is directed to an optical film thickness measuring system for use in manufacturing line for wafers. Hallmeyer further discloses a complex arrangement that includes a light source, a spectrograph, a series of lenses and mirrors, and a beam splitter. A halogen lamp or deuterium lamp is provided as a light source. As a result, the spectral range of operation is above 100 nm.

In addition, Hallmeyer does not teach or suggest how to determine the angle-dependent reflectivity of a measurement object. Thus, the arrangement of Hallmeyer is not suitable for angle-dependent measurements since Hallmeyer specifically states that the sample surface P must always extend perpendicular to the sample measurement beam 7 incident to the surface. As a result, angle-dependent measurements are not possible or suitable in the arrangement disclosed in Hallmeyer.

With regard to Loicht, it should be noted that Loicht does not teach or suggest any type of reflection measurements. Specifically, Loicht does not teach or suggest angle-dependent reflection measurements. Rather Loicht is directed to exclusively for transmission measurements for determining the ingredients of a gaseous or liquid fluid in which the beam direction does not change.

In contrast to the cited references, the claimed invention provides an optical system to for determining the spectral reflectivity at given incident angles or as a function of the angle of incidence in the preferred wavelength. In addition, the claimed invention provides a radiation source having two different beam areas proceeding from serving as a measurement beam and reference beam which are directed simultaneously to different spectrally dispersing

areas of at least one dispersive element and to different receiver areas of at least one receiver in the spectrograph. Thus, the claimed invention minimizes the quantity of optical elements in order to determine the spectral reflectivity at given incident angles or as a function of angle of incidence in the preferred wavelength. Since the cited references fail to teach or suggest an arrangement for determining the spectral reflectivity of a measurement object as a function of angle of incidence, Applicants request the withdrawal of the rejection of the claim 1.

Moreover, the light source provided in Loicht cannot be used in Hallmeyer. As a result, the combination of Loicht and Hallmeyer would be inoperable to provide the benefits and advantages provided by the claimed invention. In view of above distinctions, Applicants respectfully submit that the combination of the cited references fail to teach or suggest all the features of the claimed invention. Therefore, applicants request the withdrawal of the rejection of claims 1-3, 9 and 10 under 35 U.S.C. 103(a).

II. Rejection Of Pending Claims 4-8 Under 35 U.S.C. § 103(a)

Claims 4-8 stand as rejected under 35 U.S.C. § 103(a) as being anticipated by Hallmeyer and Loicht and further in view of Dinsmore et al. (U.S. Patent No. 5,442,678) and Benz et al. (U.S. Patent No. 5,577,093). These rejections are traversed and believed overcome in view of the following discussion.

A. Summary of Cited References

Dinsmore is directed to an x-ray source having a housing, an elongated tubular probe, a target assembly and a beam steering assembly.

Benz is directed to a x-ray system having a rotating anode which includes a target stem connection.

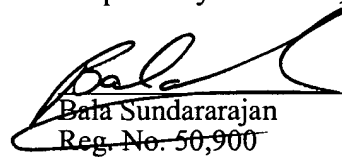
B. Argument

Claims 4-8 are dependent upon claim 1. It is respectfully submitted that neither Dinsmore and Benz teach or suggest an optical system for the measurement of angle-dependent spectral reflections. Since neither Dinsmore nor Benz cures the deficiencies of Hallmeyer and Loicht, it is respectfully submitted that the cited references fail to teach or suggest the features recited in claims 4-8. Therefore, Applicants respectfully request the withdrawal of the rejection of claims 4-8 under 35 U.S.C. 103(a).

III. Conclusion

For the reasons presented above, claims 1-10 are believed by Applicants to define patentable subject matter and should be passed to issue at the earliest possible time. A Notice of Allowance is requested.

Respectfully submitted,



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